

ORISE
OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

March 30, 2006

Mr. William Snell
U.S. Nuclear Regulatory Commission
Region III
2443 Warrenville Road
Lisle, IL 60532-4351

SUBJECT: ANALYTICAL RESULTS FOR 37 WATER SAMPLES FROM THE VICINITY OF THE DRESDEN GENERATING STATION, DRESDEN, ILLINOIS [INSPECTION REPORT NO. 05-000237/2006-003] (RFTA NO. 06-001)

Dear Mr. Snell:

The Oak Ridge Institute for Science and Education (ORISE) received 37 water samples on March 20 that were collected in the vicinity of the Dresden Generating Station in Dresden, Illinois. The 37 water samples were analyzed for tritium using a liquid scintillation analyzer (Procedures AP2, Revision 15 and CP4, Revision 3). The chain of custody identified the individual water samples to be analyzed by gamma spectroscopy (GS) (Procedure CP1, Revision 15). The sample identifications and collection data are presented in Table 1. The GS data are presented in Table 2. The tritium data are presented in Table 3.

ORISE's Quality Control (QC) requirements were met for these analyses. The QC files are available for your review upon request.

My contact information is listed below. You may also contact Wade Ivey at 865.576.9184 with any questions or comments.

Sincerely,



Dale Condra, Manager
Laboratory

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TABLE 1

SAMPLE IDENTIFICATIONS
AND COLLECTION DATA
DRESDEN GENERATING STATION
DRESDEN, ILLINOIS

ORISE Sample ID	NRC Region III Sample ID	Collection Date	Collection Time
1694W0001	D-06-1-01	2/18/2006	11:00 AM
1694W0002	D-06-1-02	2/19/2006	10:15 AM
1694W0003	D-06-1-03	2/20/2006	12:26 PM
1694W0004	D-06-1-04	2/14/2006	11:30 AM
1694W0005	D-06-1-05	2/21/2006	10:25 AM
1694W0006	D-06-1-06	2/22/2006	12:50 PM
1694W0007	D-06-1-07	2/23/2006	12:05 PM
1694W0008	D-06-1-08	2/24/2006	10:30 AM
1694W0009	D-06-1-09	2/25/2006	8:30 AM
1694W0010	D-06-1-10	2/26/2006	8:15 AM
1694W0011	D-06-1-11	2/27/2006	4:15 PM
1694W0012	D-06-1-12	2/28/2006	8:40 AM
1694W0013	D-06-1-13	3/1/2006	2:15 PM
1694W0014	D-06-1-14	3/2/2006	5:40 PM
1694W0015	D-06-1-15	3/3/2006	12:05 PM
1694W0016	D-06-1-16	3/3/2006	11:25 AM
1694W0017	D-06-1-17	3/3/2006	11:45 AM
1694W0018	D-06-1-18	3/3/2006	12:15 PM
1694W0019	D-06-1-19	3/3/2006	9:15 AM
1694W0020	D-06-1-20	3/3/2006	9:25 AM
1694W0021	D-06-1-21	3/3/2006	9:00 AM
1694W0022	D-06-1-22	3/3/2006	1:05 PM
1694W0023	D-06-1-23	3/3/2006	9:35 AM
1694W0024	D-06-1-24	3/3/2006	12:50 PM
1694W0025	D-06-1-25	3/3/2006	1:00 PM
1694W0026	D-06-1-26	3/3/2006	9:45 AM
1694W0027	D-06-1-27	3/3/2006	9:50 AM
1694W0028	D-06-1-28	3/4/2006	4:40 PM
1694W0029	D-06-1-29	3/5/2006	10:50 AM
1694W0030	D-06-1-30	3/6/2006	11:50 AM
1694W0031	D-06-1-31	3/7/2006	11:00 AM
1694W0032	D-06-1-32	3/8/2006	10:15 AM
1694W0033	D-06-1-33	3/9/2006	1:00 PM
1694W0034	D-06-1-34	3/10/2006	11:20 AM
1694W0035	D-06-1-35	3/11/2006	11:15 AM
1694W0036	D-06-1-36	3/12/2006	8:20 AM
1694W0037	D-06-1-37	3/13/2006	9:40 AM

TABLE 2

**CONCENTRATIONS OF SELECTED
GAMMA EMITTING RADIONUCLIDES
IN SELECTED WATER SAMPLES
BY GAMMA SPECTROSCOPY CP1, REVISION 15
DRESDEN GENERATING STATION
DRESDEN, ILLINOIS**

ORISE Sample ID	NRC Region III Sample ID	Radionuclide Concentrations ^a (pCi/L)			
		Co-58	Co-60	Cs-134	Cs-137
1694W0005	D-06-1-05	3.0 ± 6.1 ^b	0.9 ± 5.1	0.3 ± 5.4	11.5 ± 6.4
1694W0010	D-06-1-10	7.4 ± 8.9	0.4 ± 5.6	-4.0 ± 8.9	-4.1 ± 5.0
1694W0015	D-06-1-15	-2.4 ± 4.9	0.0 ^c ± 4.7	3.2 ± 4.8	4.2 ± 4.3
1694W0020	D-06-1-20	1.0 ± 6.4	0.1 ± 6.0	-1 ± 10	3.2 ± 5.3
1694W0025	D-06-1-25	-0.6 ± 6.7	3.4 ± 5.4	-5.9 ± 9.0	1.6 ± 4.9
1694W0030	D-06-1-30	2.0 ± 5.2	2.8 ± 5.3	2.7 ± 5.4	11.2 ± 7.7
1694W0035	D-06-1-35	-0.8 ± 5.5	5 ± 11	-3.5 ± 9.4	2.6 ± 6.0

^aThe range of MDCs for the selected radionuclides is 7.5 pCi/L to 11 pCi/L.

^bUncertainties represent the 95% confidence level, based on total propagated uncertainties.

^cZero values are due to rounding.

TABLE 3

**CONCENTRATIONS OF TRITIUM
IN WATER SAMPLES
BY LIQUID SCINTILLATION ANALYSIS
AP2, REVISION 15; CP4, REVISION 3
DRESDEN GENERATING STATION
DRESDEN, ILLINOIS**

ORISE Sample ID	NRC Region III Sample ID	Tritium Concentrations, TPU's, and MDCs ^a (pCi/L)
1694W0001	D-06-1-01	61,600 ± 1,500 ^b (390)
1694W0002	D-06-1-02	36,700 ± 1,100 (390)
1694W0003	D-06-1-03	74,300 ± 1,700 (390)
1694W0004	D-06-1-04	570 ± 130 (200)
1694W0005	D-06-1-05	11,040 ± 610 (430)
1694W0006	D-06-1-06	14,000 ± 670 (390)
1694W0007	D-06-1-07	7,210 ± 500 (390)
1694W0008	D-06-1-08	43,500 ± 1,200 (390)
1694W0009	D-06-1-09	2,650 ± 350 (390)
1694W0010	D-06-1-10	-20 ± 240 (430)
1694W0011	D-06-1-11	47,600 ± 1,300 (390)
1694W0012	D-06-1-12	9,490 ± 560 (390)
1694W0013	D-06-1-13	71,200 ± 1,600 (390)
1694W0014	D-06-1-14	4,580 ± 420 (390)
1694W0015	D-06-1-15	-260 ± 230 (430)
1694W0016	D-06-1-16	115,500 ± 2,200 (390)
1694W0017	D-06-1-17	6,790 ± 490 (390)
1694W0018	D-06-1-18	290 ± 240 (390)
1694W0019	D-06-1-19	10,130 ± 590 (430)
1694W0020	D-06-1-20	560 ± 270 (430)
1694W0021	D-06-1-21	460 ± 270 (430)
1694W0022	D-06-1-22	670 ± 280 (430)
1694W0023	D-06-1-23	4,310 ± 420 (430)
1694W0024	D-06-1-24	1,000 ± 290 (430)
1694W0025	D-06-1-25	1,750 ± 330 (430)
1694W0026	D-06-1-26	6,410 ± 490 (430)
1694W0027	D-06-1-27	3,820 ± 400 (430)
1694W0028	D-06-1-28	131,100 ± 2,400 (430)
1694W0029	D-06-1-29	10,040 ± 580 (430)
1694W0030	D-06-1-30	14,100 ± 680 (430)
1694W0031	D-06-1-31	7,550 ± 520 (430)
1694W0032	D-06-1-32	83,300 ± 1,300 (220)
1694W0033	D-06-1-33	250,300 ± 3,900 (430)

TABLE 3 (continued)

CONCENTRATIONS OF TRITIUM
IN WATER SAMPLES
BY LIQUID SCINTILLATION ANALYSIS
AP2, REVISION 15; CP4, REVISION 3
DRESDEN GENERATING STATION
DRESDEN, ILLINOIS

ORISE Sample ID	NRC Region III Sample ID	Tritium Concentrations, TPUs, and MDCs ^a (pCi/L)
1694W0034	D-06-1-34	43,500 ± 1,200 (430)
1694W0035	D-06-1-35	6,540 ± 490 (430)
1694W0036	D-06-1-36	225,800 ± 3,600 (430)
1694W0037	D-06-1-37	1,320 ± 310 (430)

^aMDCs are in parenthesis.

^bUncertainties represent the 95% confidence level, based on total propagated uncertainties.